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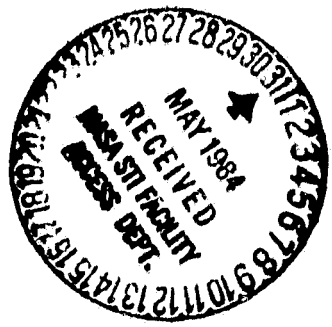

STATE REMOTE SENSING PROGRAMS CATALOG

Report Series from the Earth Resources Data Project

HALL OF THE STATES • 444 North Capitol Street • Washington, D.C. 20001

STATE REMOTE SENSING (LANDSAT) PROGRAMS CATALOG

Prepared by
The Council of State Governments

for the
Earth Resources Data Project
Council of State Planning Agencies

March 1981

FOREWORD

Natural resource issues have been in the forefront in recent years as citizens and public officials have become more aware of the need to better manage the Nation's limited natural resource base. Along with new management directions has come new emphasis on reducing government size and expenditures at all levels. It is incumbent on the natural resource managers in states today to find innovative and cost-effective ways to manage the resources for which they are responsible.

In recent years, some states have shown initiative in applying new information and remote sensing technologies as a way to creatively do more with less. It is hoped that this catalog will encourage dialogue and information exchange among state users of Landsat data and those who might wish to initiate or expand their use of remote sensing.

Although the focus of this report is on the status of program development in states using Landsat data, many respondents indicated other capabilities as well—including software to analyze geographic data, and the use of traditional remote sensing (aerial photographs). State-level programs are found in universities, individual state agencies, and as part of statewide natural resources information systems. An important aspect of these programs is that they tend to share resources and serve a variety of program needs—and in fact, could be considered interagency and sometimes intergovernmental in nature.

Contents of this document were compiled from ey conducted by Bill Schneider, Research Associate for the Council of State Governments, at the request of the Council of State Planning Agencies. Suggestions on design, information elements and other guidance were provided by the Earth Resources Data Council, an advisory group of state officials established by the Council of State Planning Agencies in consultation with the National Governors' Association.

This document is a directory of those state programs using remote sensing data that responded to the survey. Consequently, this catalog represents a "snapshot" of state programs as they existed in late 1980, and may not be complete for every state. Continual update of this catalog will be necessary to keep abreast of changes that are occuring rapidly in technical capabilities, personnel, and program structure. Please send comments and corrections to the:

Earth Resources Data Project
Council of State Planning Agencies
400 North Capitol Street, NW
Washington, D.C. 20001
(202) 624-5386

CONTENTS OF THE CATALOG

This catalog contains one-page summary descriptions of each state's remote sensing program.

Information is provided about the following aspects of each state's program:

CONTACT: The name, address and telephone number of the person or persons having responsibility for and/or knowledge of the state's remote sensing program. In most instances, the individual who supplied the information contained in the summary descriptions.

INSTITUTIONAL FRAMEWORK: The state agency, interagency group, university research center or other entity having lead responsibility for the state's remote sensing program.

PARTICIPATING AGENCIES AND ORGANIZATIONS: Major users of and contributors to the remote sensing applications developed; participants in demonstration projects or agencies/organizations which contracted for remote sensing products.

APPLICATIONS: The major uses of remote sensing, described in products or programs.

STATUS: Whether the utilization of remote sensing is considered to be operational, under development, in the planning stages, or experimental; demonstration projects are identified.

EQUIPMENT: The hardware components acquired for use in remote sensing programs, whether dedicated or shared.

SOFTWARE: Identification of software used in digital processing of remote sensing data, including sources.

FUNDING: Major sources of operating or demonstration funds for remote sensing activities.

OTHER INFORMATION: Additional notes describing the program and its status.

REMOTE SENSING PROGRAM SUMMARY
ALABAMA

Contact:	Walter Stevenson, Jr. Office of State Planning and Federal Programs 3734 Atlanta Highway Montgomery, Alabama 36130 (205) 832-6400
Institutional Framework:	State Planning Office Auburn University
Participating Agencies and Organizations:	Water resource and pollution Alabama Surface Mining and Reclamation Commission River Basin planning commission
Applications:	Land use/land cover Water resource planning Agricultural resource assessment
Status:	Under development
Equipment:	State—HP 300 Series 33 minicomputer COMTAL Image Display System INTEL Processor interface for HP and COMTAL Auburn—IBM 370/3031
Software:	ELAS Software on HP ARIS AUTOMAP ON HP (Interactive) ARIS (Alabama Resource Information System) software on IBM 370/3031
Funding:	Appalachian Regional Commission, NASA State general fund, HUD, EDA and WRC funds
Other Information:	Operational by late spring 1981

REMOTE SENSING PROGRAM SUMMARY
ALASKA

Contact:	James Anderson Dept. of Natural Resources 700 W. Northern Lights Blvd. Anchorage, Alaska 99500 (907) 263-2299
Institutional Framework:	Department of Natural Resources
Participating Agencies and Organizations:	Governor's Policy Development & Planning Office Department of Environmental Conservation Fish and Game Department Anchorage Municipality USGS, BLM, DOI, U.S. Corps of Engineers, USDA
Applications:	1. Land cover/land use--South Central Alaska, MaTanuska/Sussitna and Anchorage areas. 2. Land use/land cover—Tannana River Basin 3. Wetlands research project 4. Urban classification system for Anchorage
Status:	Operational facility is available via USGS (see below) State capability is under development
Equipment:	USGS Facility—IDIMS processor HP 3300 minicomputer and peripherals Alaska—DATA GENERAL ECLIPSE minicomputer
Software:	IDIMS system software
Funding:	USGS, NASA, State General Fund, Local Government, BLM.

REMOTE SENSING PROGRAM SUMMARY
ALASKA—Continued

Other Information:	Alaska currently uses the USGS EROS facility in Anchorage to process LANDSAT data. It plans to use NASA VICAR/IBIS software on its IBM computers in the near future. NASA is also developing a software package to enable LANDSAT data to be processed on the Alaska Dept. of Natural Resources DATA GENERAL ECLIPSE minicomputer and the GIS (Geographic Information System) for Alaska that is currently being developed.

REMOTE SENSING PROGRAM SUMMARY
ARIZONA

Contact:	Acting Director Information Resources Division Arizona State Land Department 1624 West Adams, Room 300 Phoenix, Arizona 85007 (602) 255-4061
Institutional Framework:	Arizona Resources Information System (ARIS) State Land Department
Participating Agencies and Organizations:	State Land Department Department of Revenue Department of Transportation State Water Commission
Applications:	State Trust Lands Mapping Land Status Mapping
Status:	Manual interpretation of landsat imagery operational; digital capability under development.
Equipment:	Data General Eclipse S130 CPU Dasher CRT Talos digitizer Zeta pen plotter Tektronix 4010 Graphics CRT
Software:	ESCATEC (Data General Package) various packages from NASA/JPL, ASA/Ames, and Georgia Tech (none implemented)
Funding:	State funds
Other Information:	ARIS is currently under evaluation by state legislature; location and status will likely change.

REMOTE SENSING PROGRAM SUMMARY
ARKANSAS

Contact:	William V. Bush Arkansas Geological Commission 3815 West Roosevelt Road Little Rock, Arkansas 72204 (501) 371-1646
Institutional Framework:	Arkansas Geological Commission (state agency)
Participating Agencies and Organizations:	Governor's Office Department of Energy Forestry Commission Department of Computer Services Highway Department Department of Pollution Control & Ecology Soil and Water Conservation Commission Department of Economic Development Ozarks Regional Commission U.S. Conservation Services, U.S. Geological Survey University of Arkansas, Arkansas Technology University
Applications:	Land use change monitoring in southern portion of state.
Status:	Arkansas is participating in a Landsat demonstration project with NASA's Earth Resources Laboratory.
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
CALIFORNIA

Contact:	Timothy R. Hays Environmental Data Center Office of Planning & Research 1400 Tenth Street Sacramento, California 95010 (916) 322-3784
Institutional Framework:	Governor's Office (state agency)
Participating Agencies and Organizations:	Resources Agency and component agencies Department of Transportation Department of Health Services
Applications:	Land cover/use monitoring Hazardous waste site monitoring Snow melt monitoring Vegetation and timber classification Agricultural land use monitoring
Status:	Aircraft component operational Snow melt program with Landsat operational Other under development in pre-operational stage
Equipment:	N/A
Software:	N/A
Funding:	State general fund, some special projects funded by NASA on Demonstration Projects
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
COLORADO

Contact:	Leonard Slosky Assistant to the Governor for Science & Technology Office of the Governor State Capitol Building Denver, Colorado 80203 (303) 839-2471
Institutional Framework:	Division of Planning, Department of Local Affairs
Participating Agencies and Organizations:	Department of Natural Resources Department of Highways Department of Agriculture State Forest Service
Applications:	Urban change detection Census mapping Energy impact analyses Agricultural land mapping Snow runoff prediction Drought monitoring Wildlife habitat identification Detection of mountain pine beetle infestation Timber typing
Status:	Under development
Equipment:	PRIME Computer
Software:	N/A
Funding:	Legislative appropriation, DOE grant, Governor's special studies, agencies operating funds
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
CONNECTICUT

Contact:	No Program
Institutional Framework:	N/A
Participating agencies and organizations:	N/A
Applications:	N/A
Status:	N/A
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
DELAWARE

Contact:	David L. Hardin Dept. of Natural Resources and Environmental Control Wetlands Section Box 1401 Dover, Delaware 19901 (302) 736-4691
Institutional Framework:	Department of Natural Resources and Environmental Control (lead agency) University of Delaware, College of Marine Studies
Participating Agencies and Organizations:	Department of Natural Resources and Environmental Control Office of Management, Budget and Planning Bureau of Archaeology and Historic Preservation Universtiy of Delaware, College of Marine Studies
Applications:	Mapping Land Cover Change Forest Inventory Loss of prime agricultural land to development Identification of Archaeological Sites Inclusion of Landsat data into existing data bases
Status:	Planned Landsat demonstration project with NASA's Regional Remote Sensing Applications Center
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	University contact: Ian Wells, University of Delaware, College of Marine Studies, Newark, Delaware 19711 (302) 738-2842

REMOTE SENSING PROGRAM SUMMARY
FLORIDA

Contact:	W. C. DeLoach, P.E. State Topographic Engineer or William H. Kuyper Remote Sensing Engineer Department of Transportation State Topographic Office Tallahassee, Florida 32301 (904) 488-2168
Institutional Framework:	State Topographic Office, Dept. of Transportation (lead agency)
Participating Agencies and Organizations:	Various State, County, and Regional government agencies
Applications:	Land Use-Vegetation Cover Soil Drainage Geology
Status:	Operational
Equipment:	Dietzgen Mirror Stereoscopes with X-Y Traveling Bars M & S Interactive Computer Graphics System Spatial Data T.V. Densitometer I^2S Multispectral Viewers B & L Zoom Transfer Scope Richards (B & L Zoom Stereoscope) motorized, four film drive system.
Software:	M & S Computer Inc.
Funding:	Gastons Revenue (Trust Fund)
Other Information:	Recommendations for a two year program to develop Landsat capability have been forwarded to the Governor's Office for approval. A state agency committee proposed that the system be purchased and installed in the State Topographic Office.

REMOTE SENSING PROGRAM SUMMARY
GEORGIA

Contact:	Bruce Q. Rado Environmental Prot. Div. Geological Survey 19 M. L. King Jr. Dr., S.W. Atlanta, Georgia 30334 (404) 656-3214
Institutional Framework:	Activities housed in the Department of Natural Resources, Environmental Protection Division. Historically, Landsat activities have occurred on a contractual basis between the agency and the Georgia Institute of Technology.
Participating Agencies and Organization:	Department of Natural Resources (Environmental Protection and Game and Fish), Georgia Forestry Commission, Soil Conservation Service, Corps of Engineers, Area Planning and Development Commissions, Georgia Department of Community Affairs.
Applications:	Potential wildlife habitat areas, watershed acreage statistics, wetland delineation, county acreage statistics, delineation of bare soil areas.
Status—Operational:	Activities performed on a project by project basis
Equipment:	Mini-computer, tape drives, disk drives, color inter-active monitor, dot-matrix printer and etc.
Software:	Complete landsat and data base programs
Funding:	Various agency sources
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
HAWAII

Contact:	Sahji Kato Planning Division Dept. of Planning & Economic Development P.O. Box 2359 Honolulu, Hawaii 96804 (808) 548-3016
Institutional Framework:	State of Hawaii Ad Hock Committee on Remote Sensing
Participating Agencies and Organizations:	State of Hawaii Department of Land and Natural Resources State of Hawaii Department of Agriculture State of Hawaii Department of Planning and Economic Development Governor's Office of Environmental Quality Control County of Hawaii
Applications:	Land and Water Use Classification Monitoring Land Use Change
Status:	Experimental: A demonstration program has been conducted with NASA's Western Regional Applications Program.
Equipment:	N/A
Software:	N/A
Funding:	Coastal Zone Management Program
Other Information:	Follow-up to the demonstration program is planned. Potential applications have been identified by state agencies.

REMOTE SENSING PROGRAM SUMMARY
IDAHO

Contact:	Kim Johnson Department of Water Resources 450 W. State Street Boise, Idaho 83720 (208) 334-4457
Institutional Framework:	Department of Water Resources (responsible for developing Idaho Image Analysis Facility) Division of Economic & Community Affairs (respresentative to PNW Regional Commission)
Participating Agencies and Organizations:	Idaho Department of Water Resources " Department of Fish and Game " Bureau of Mines & Geology Universtiy of Idaho, College of Forestry, Wildlife & Range Sciences Idaho Division of Economic & Community Affairs
Applications:	Inventory of irrigated cropland Development of image analysis facility including software and hardware Wildlife habitat study Geologic hazards mapping Training
Status:	Idaho Image Analysis Facility at IDWR is under development and nearing operational status.
Equipment:	Zoom Transfer Scope–Bausch & Lomb Digitizer–GTCO Light Tables Mirror Stereoscope PDP 11-34 I^2S Model 70 (on order) Also utilize IBM 370-168

REMOTE SENSING PROGRAM SUMMARY
IDAHO—Continued

Software:	VICAR—IBIS (from NASA/JPL) I^2S 511 (on order)
Funding:	Pacific Northwest Regional Commission, NASA, individual State agencies
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
ILLINOIS

Contact:	John Bishop Institute of Natural Resources 325 W. Adams Street Springfield, Illinois 62706 (217) 785-2800
Institutional Framework:	No single entity has lead agency role.
Participating Agencies and Organizations:	Department of Conservation Regional Planning Agencies and Universities Department of Local Government Affairs Illinois Environmental Protection Agency
Applications:	Land-use/land cover classification in southwestern Illinois Water quality mapping EPA 208 program (planned) Illinois Dept. of Conservation—forest inventory along the Mississippi River (planned)
Status:	Landsat use in the state has been a series of one-time application projects
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
INDIANA

Contact:	**David C. Zumeta, Senior Planner** **State Planning Services Agency** **143 W. Market St., Suite 300** **Indianapolis, Indiana 46204** **(317) 232-1500**
Institutional Framework:	**No single entity has lead agency role**
Participating Agencies and Organizations:	**Indiana State Highway Commission** **Indiana State Planning Services Agency** **Indiana Dept. of Natural Resources, Div. of Reclamation, Water, Forestry, Nature Preserves, Fish and Wildlife and State Geological Survey.**
Applications:	**Delineation of potential highway route locations** **Analysis of land use patterns** **Monitoring of strip mine reclamation, mapping of areal extent of surface water bodies, forest resource inventory in coastal zone, mapping of natural grasslands in northern Indiana, wetlands inventory, location of potential gravel deposits, coal deposits, and other geological features.**
Status:	**Landsat use in the state has been done through contracts with universities and consultants.**
Equipment:	**N/A**
Software:	**N/A**
Funding:	**Project by project basis.**
Other Information:	**N/A**

REMOTE SENSING PROGRAM SUMMARY
IOWA

Contact:	Bernard Hoyer Iowa Geological Survey 123 North Capitol Iowa City, Iowa 52242 (319) 338-1173 or 1174
Institutional Framework:	Iowa Geological Survey Remote Sensing Laboratory
Participating Agencies and Organizations:	1. Iowa Department of Soil Conservation 2. Iowa Conservation Commission 3. Iowa Department of Environmental Quality 4. Iowa Natural Resources Council 5. U.S. Soil Conservation Service 6. Corps of Engineers 7. U.S. Geological Survey, Water Resources Division
Applications:	Land use change Erosion Flood mapping Environmental site studies
Status:	Landsat processing under development Other remote sensing methodology is operational
Equipment:	Perkin Elmer/3220 mini-computer Comtal/Vision One/20 color image display Bausch & Lomb/Zoom transfer scope Bausch & Lomb/240 stereo zoom microscope & light table I^2S/Multiband camera I^2S/Multiband viewer Tektronix/Digitizer 4954 Versatec/electrostatic plotter Other aerial sensing equipment

REMOTE SENSING PROGRAM SUMMARY
IOWA—Continued

Software:	ELAS (NASA-ERL) In house
Funding:	State Appropriation
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
KANSAS

Contact:	Dr. Edward A. Martinko Kansas Applied Remote Sensing (KARS) Program University of Kansas Space Technology Center 2291 Irving Hill Rd. Lawrence, Kansas 66045 (913) 863-4775
Institutional Framework:	University of Kansas Applied Remote Sensing Program (KARS)
Participating Agencies and Organizations:	Fourteen (14) state agencies have participated in projects; numerous other federal, regional and local government agencies have also been involved.
Applications:	land use/land cover inventory irrigated lands inventories wildlife habitat evaluation strip mined land assessment crop and rangeland evaluation
Status:	KARS Program is funded through NASA's university grant program; it is operational but not state supported.
Equipment:	Image interpretation: Stereoscopes, zoom transfer scopes, light tables Data processing: Intertic intelligent terminal (interfaced to Honeywell Level 66 shared system) IDS 440 Dot Matrix Printer Digitizer Tekhonix Desk-top computers
Software:	LSDP (NASA) ELAS (NASA/ERL) Internally developed software

REMOTE SENSING PROGRAM SUMMARY
KANSAS—Continued

Funding:	NASA, contract funds from federal and state agencies
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
KENTUCKY

Contact:	Dr. Wally Dryden Department of Natural Resources & Environmental Protection Capital Plaza Tower, 4th Floor Frankfort, Kentucky 40601 (502) 564-5174
Institutional Framework:	State Department of Natural Resources & Evnironmental Protection Murray State University, Murray, Kentucky (Mid-America Remote Sensing Center)
Participating Agencies and Orgainzations:	Divisions within the state Department of Natural Resources & Environmental Protection State Department of Transportation Kentucky Legislative Research Commission State Department of Agriculture
Applications:	Facility siting Forestry applications Determination of prime agriculture land Soil erosion studies Waste management River basin management
Status:	State—System under development (50% operational). Fully operational by January, 1981. University—fully operational.
Equipment:	Prime 750, 2 tape drives, 3 2 meg disk drives, 300 Lpm printer DEANZA image processor with attached Dunn Polaroid camera DEC PDP-11 minicomputer ZEROX Versatec printer plotter (black & white) Houston Instruments 310 plotter TALOS digitizer with free flowing cursor Princeton Intelligent graphics terminal

REMOTE SENSING PROGRAM SUMMARY
KENTUCKY—Continued

Software:	Interactive software from KNRIS (Kentucky Natural Resource Information System) Modified ELAS (NASA ERL) software to interface with KNRIS developed by Environmental Systems Research Institute Related software from Environmental Systems Research Institute (Redlands, California)
Funding:	State appropriations for state agency NASA grant at Murray State University
Other Information:	The program at Murray State University provides training in NASA software and systems. Kentucky's state agency personnel are contemplating taking advantage of this resource. Both institutions operate wholly separate programs and the data on this sheet only describes state agency resources.

REMOTE SENSING PROGRAM SUMMARY
LOUISIANA

Contact:	Dr. Charles Harlow Director, Remote Sensing and Image Processing Lab Division of Engineering Research 3418 CEBA Louisiana State University Baton Rouge, Louisiana 70803 (504) 388-8417
Institutional Framework:	Remote sensing and image processing laboratory Division of Engineering Research, Louisiana State University
Participating Agencies and Organizations:	Coastal Zone Management Section, Louisiana Department of Transportation Louisiana Geological Survey LSU Coastal Studies Institute U.S. Corps of Engineers National Aeronautics and Space Administration
Applications:	Coastal zone management Hazardous waste disposal Crop irrigation practices Water quality Climate/Oceanography Wildlife/Forest habitat delineation Lignite mining Teaching/Training/Workshops Texture analysis
Status:	N/A
Equipment:	Interdata 8/32 computer Comtal 8000-SE image display device Talos digitizer Varian statos electrostatic plotter Printonix printer

REMOTE SENSING PROGRAM SUMMARY
LOUISIANA—Continued

Equipment:	Hamamatsu camera/scanning system Bausch and Lomb zoom transfer scope Daedalus multispectral scanner
Software:	Internally developed plus software from NASA/ERL, U.S. Fish and Wildlife Service, and U.S. Corps of Engineers
Funding:	National Science Foundation, Environmental Protection Agency, Corps of Engineers, U.S. Air Force, National Aeronautics and Space Administration, Coastal Zone Management.
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
MAINE

Contact:	James F. Conners Land Use Regulatory Commission State House Sta 22 Augusta, Maine 04333 (207) 289-2631
Institutional Framework:	No single entity serves as lead agency; there is an ad hoc remote sensing interest group.
Participating Agencies and Organizations:	Dept. of Conservation State Planning Office University of Maine Dept. of Environmental Protection
Applications:	Forest Inventory: fire control, insect problems, environmental hazards, wildlife habitat, groundwater resources
Status:	A landsat demonstration program is being conducted with NASA's Eastern Regional Remote Sensing Applications Center.
Equipment:	IBM 360 (University facility) Digitizer Calcomp plotter
Software:	ORSER/OCCULT (Penn State)
Funding:	State Funds
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
MARYLAND

Contact:	Susan Alderman Maryland Department of State Planning 301 West Preston Street Baltimore, Maryland 21201 (301) 383-3067
Institutional Framework:	Department of State Planning
Participating Agencies and Organizations:	University of Maryland—Department of Geography Department of Natural Resources
Applications:	Water holding pond location Forest cover classification Land cover classification Land cover/use change detection
Status:	Applications developed in demonstration project with NASA's Eastern Regional Remote Sensing Applications Program
Equipment:	Digital Equipment Corp—2 LA 36 Decwriter II Terminals
Software:	Algorithm Simulation Test and Evaluation Program (ASTEP II)
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
MASSACHUSETTS

Contact:	Dr. Robert L. Huguenin, Director Remote Sensing Program The Environmental Institute Blaisell House University of Massachusetts Amherst, Massachusetts 01003 (413) 545-0648
Institutional Framework:	The Remote Sensing Center The Environmental Institute University of Massachusetts/Amherst
Participating Agencies and Organizations:	University of Massachusetts Departments State Agencies
Applications:	Land Use/Land Cover Analysis Resource Exploration Coastal Mapping Wildlife Modeling
Status:	Portions operational/portions under development/portions planned
Equipment:	Hewlett Packard 9845C Color Graphics Mini-computer with 4 color plotter & digitizer Perin Elmer UV/VIS/NIR & Perkin Elmer IR Spectrophotometers CDC Cyber 175 Mainframe Ramtek High Resolution Color Graphics Terminals Tectronics Graphics Terminals
Software:	CDC Intersys CDC Explor University of Minnesota Package NASA Packages UMASS Graphics Packages

REMOTE SENSING PROGRAM SUMMARY
MASSACHUSETTS—Continued

Funding:	University of Massachusetts Funds NASA Grants NSF Grants Private Industry Grants USDA Experiment Station Funds
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
MICHIGAN

Contact:	Larry Folks Michigan Dept. of Natural Resources Div. of Land Resource Programs Box 30028 Lansing, Michigan 48909 (517) 373-3328
Institutional Framework:	No single entity has lead agency role
Participating Agencies and Organizations:	Michigan Dept. of Natural Resources —Division of Land Resource Program —Forest Management Division Michigan State University —Center for Remote Sensing
Applications:	Land Use/Cover Classification Forest Inventory/Change Water Quality—Identified need Coastal Zone Monitoring—Identified need Crop Irrigation—Identified need
Status:	The Landsat imagery for two pilot studies were processed through the Environmental Research Institute of Michigan's facilities in Ann Arbor.
Equipment:	N/A
Software:	N/A
Funding:	U.S. Dept. of Housing and Urban Development—701 Comprehensive Planning Grant NASA Demonstration Grant
Other Information:	The Department of Transportation is currently considering the feasibility of purchasing software to process Landsat data.

REMOTE SENSING PROGRAM SUMMARY
MINNESOTA

Contact:	Earl Nordstrand LMIC State Planning Agency LL 45 Metro Square Bldg. 7th & Roberts Streets St. Paul, Minnesota 55101 (612) 296-1202
Institutional Framework:	Land Management Information Center (LMIC) State Planning Agency
Participating Agencies and Organizations:	Pollution Control Agency University of Minnesota, Remote Sensing Lab. Department of Natural Resources State Planning Agency, Environmental Planning
Application:	Water Quality Inventory Irrigation Monitoring Land Use Change Detection Land Cover Mapping
Status:	Operational by January 1, 1981
Equipment:	PRIME 550 DeAnza Image Processor Versatec and Trilog plotters
Software:	Environmental Planning and Programming Language (internally developed) ELAS (software from NASA ERL) PLOS (Environmental Systems Research Institute)
Funding:	State appropriation, service bureau account Legislative Commission on Minnesota Resources grant

REMOTE SENSING PROGRAM SUMMARY
MINNESOTA—Continued

Other Information:	LMIC acts as a coordinator and service bureau to provide this capability to state users.

REMOTE SENSING PROGRAM SUMMARY
MISSISSIPPI

Contact:	Eddy Downing P.O. Drawer 2470 Jackson, Mississippi 39205 (601) 982-6339
Institutional Framework:	Mississippi Research & Development Center
Participating Agencies and Organizations:	State and local agencies, U.S. Soil Conservation Service
Applications:	N/A
Status:	Landsat capability is being planned
Equipment:	N/A
Software:	IMGRID version 3.5—Harvard/TVA
Funding:	State government
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
MISSOURI

Contact:	Dr. Chris J. Johannsen 214 Waters Hall, UMC Columbia, Missouri 65211 (314) 882-2001
Alternate:	Dr. William McFarland 303 EE Building, UMC Columbia, Missouri 65211 (314) 882-3078
Institutional Framework:	Geographic Resources Center (GRC), University of Missouri, Columbia
Participating Agencies and Organizations:	University of Missouri–Columbia Soil Conservation Service Missouri Department of Conservation " " " Natural Resources U.S. Forest Service Missouri Farmers Association
Applications:	Watershed analysis Forest cover mapping Soil survey interpretations Forest data base Erosion potential MFA application pilot test program Strip mine reclamation Land cover type mapping
Status:	The GRC has just been initiated during 1980. Plans for equipment purchase are being developed.
Equipment:	PDP-11/50 with 2 Ramtek Image Displays, Spatial Data Image Digitizer Graf-Pen 2-D digitizer; Perkin-Elmer 7/32 w H-P graphic plotter UM Computer Network Amdahl 470/V7

REMOTE SENSING PROGRAM SUMMARY
MISSOURI—Continued

Software:	Application software is primarily developed in-house GEOREF and SEARCH (NASA/ERL)
Funding:	Soil Cor *ervation Service,* Missouri Dept. of Natural Resources Department of Energy U.S. Geological Survey
Other Information:	The GRC has a remote sensing expertise, initiated by a NASA grant, that provides digital analysis capabilities of Landsat and other multispectral data sources, digital analysis of aerial photography, data base development, photo interpretation and photogrammetry analysis. The GRC cooperates with the Remote Sensing Laboratory, University of Missouri-Rolla which specializes in geologic and mining applications of remote sensing. UMR Contact: Dr. David Barr, 129 Mining Bldg., UM, Rolla, MO 65401. (314) 341-4759.

REMOTE SENSING PROGRAM SUMMARY
MONTANA

Contact:	R. Thomas Dundas, Administrator Research & Information System Div. Dept. of Community Affairs Capital Station Helena, Montana 59601 (406) 449-2896
Institutional Framework:	Department of Community Affairs
Participating Agencies and Organizations:	Department of Natural Resources Department of Revenue Cascade County Department of Community Affairs
Applications:	Land Use Irrigated Land Inventory Inventory of all water bodies
Status:	Under development
Equipment:	IBM 370-158 computer (shared state system)
Software:	Vicar/IBIS (NASA)
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
NEBRASKA

Contact:	Dr. Don Rundquist or Scott Samson Remote Sensing Applications Lab. Universtiy of Nebraska/Omaha Omaha, Nebraska 68182 (402) 554-2725 or Don Buckwalter Conservation & Survey Division Institute of Agriculture & Natural Resources University of Nebraska Lincoln, Nebraska 68588 (402) 472-3471
Institutional Framework:	University of Nebraska–Lincoln University of Nebraska–Omaha
Participating Agencies and Organizations:	Nebraska Natural Resources Commission State Department of Water Resources State Department of Environmental Control Games and Parks Commission State Department of Roads U.S. Army Corps of Engineers Private sector Agricultural interest organizations
Applications:	Lincoln–Geological lineament studies Center pivot irrigation system inventory Land use mapping Omaha–Wetlands inventory (Great Plains) Identification of irrigated lands under various climatic conditions
Status:	Lincoln–Operational Omaha–Operational

REMOTE SENSING PROGRAM SUMMARY
NEBRASKA—Continued

Equipment:	Lincoln—IBM 370/155 processor Alpha AM100 minicomputer TEKTRONIKS 4014 graphics Terminal TEKTRONIKS 4663 flatbed plotter Houston Instruments 36" drum plotter Bausch & Lomb—300m transfer scope Photolab (b & W color) Omaha—IBM 370/158 processor Ratheon CRT DECWRITER LA 36 Compucolor II microcomputer NUMONICS 1224 Digitizer attached to microcomputer
Software:	Lincoln—Pattern Recognition software internally developed for use with Landsat imagery Omaha—UNORSAL system for mapping (internally developed) LARSIS & ERIS software for digital image processing & statistical manipulation
Funding:	Lincoln—50% NASA Office of University Affairs (Grant) 50% state appropriation Omaha—contracts with private sector and government agencies
Other Information:	The Omaha program hopes to develop production mode capability for processing data for large geographic areas. The Lincoln program coordinator has recently resigned & there is some apprehension about the future of the program.

REMOTE SENSING PROGRAM SUMMARY
NEVADA

Contact:	Mike Nolan State Planning Coordinator's Office Capitol Bldg., Capitol Complex Carson City, Nevada 89710 (702) 885-4805
Institutional Framework:	State Planning Coordinator's Office
Participating Agencies and Organizations:	Nevada Division of Forestry University of Nevada Reno–Department of Renewable Natural Resources
Applications:	Vegetative Cover
Status:	A demonstration project has been completed with NASA's Western Regional Applications Program
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	Future program is under discussion

REMOTE SENSING PROGRAM SUMMARY
NEW HAMPSHIRE

Contact:	James F. McLaughlin Assistant State Planning Director Office of State Planning 2½ Beacon Street Concord, New Hampshire 03301 (603) 271-2155
Institutional Framework:	No single entity has lead agency role.
Participating Agencies and Organization:	Dartmouth College—Geography Department—Project in Remote Sensing; Earth Sciences Dept. University of New Hampshire—Institute of Natural & Environmental Resources; Cooperative Extension Service Office of State Planning
Applications:	Forestry—clear cut identification (current) Urban land use detection (change) Agricultural use change
Status:	A demonstration program with NASA's Eastern Regional Remote Sensing Applications Program is planned.
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
NEW JERSEY

Contact:	Bob Mills, Chief Bureau of Management Information Data Systems Dept. of Environmental Protection 88 East State Street Trenton, New Jersey 08625 (609) 292-2678
Institutional Framework:	Department of Environmental Protection
Participating Agencies and Organizations:	DEP—Coastal Resources, Water Resources, Greenacres, Parks and Forestry, Department of Community Affairs, Division of State Planning USDA, Soil Conservation Service
Applications:	Land cover mapping 208 water quality management planning Monitoring timber resource Soil erosion HUD 701 planning
Status:	Operational, but continually being redeveloped and institutionalized
Equipment:	IBM 370/145 IDT—100 color graphics terminal standalone Stand alone color graphics display system
Software:	Internally developed (ARGOS) Image correction (Computer Science Corporation)
Funding:	NOAA CZM HUD 701 EPA 208
Other Information:	Many separate efforts are just beginning to be coordinated.

REMOTE SENSING PROGRAM SUMMARY
NEW MEXICO

Contact:	Kate Wickes, Administrative Asst. Natural Resources Department Villagra Building Santa Fe, New Mexico 87503 (505) 827-5231
Institutional Framework:	The Technology Applications Center, University of New Mexico, houses the equipment which state agencies support
Participating Agencies and Organizations:	Natural Resources Department Energy and Minerals Department
Applications:	Coal development monitoring.
Status:	Operational
Equipment:	Digital Equipment Corporation PDP 11/34 2 Digital Equipment Corporation VT100 terminals 1 ADM3A CRT terminal Grinne 11 Image Display and CRT Summagraphics Digitizer
Software:	RSX 11 M (operating language) ELAS (NASA/Earth Resources Laboratory) Stansort II (Standford University)
Funding:	Four Corners Regional Commission, Office of Surface Mining, Heritage Conservation and Recreation Service
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
NEW YORK

Contact:	John C. Harmon NYS Dept. of Environmental Conservation 50 Wolf Road, Rm. 404a Albany, New York 12233 (518) 457-7480
Institutional Framework:	Department of Environmental Conservation
Participating Agencies and Organizations:	Department of Environmental Conservation Divisions of Lands and Forests Division of Fish and Wildlife
Applications:	Wildlife habitat studies Forest insect damage detection Forest inventory assessment
Status:	Demonstration project presently being conducted with NASA's Eastern Regional Remote Sensing Applications Center.
Equipment:	Line Printer
Software:	ORSER system at Penn State, through telephone links
Funding:	Department of Environmental Conservation
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
NORTH CAROLINA

Contact:	Jim Muller Division of Land Resources, DNRCD P.O. Box 27687 Raleigh, North Carolina 27611 (919) 733-3833
Institutional Framework:	North Carolina Dept. of Natural Resources and Community Development (DNRCD)
Participating Agencies and Organizations:	Land Resources Information Services, Division of Land Resources, DNRCD Land Quality Section, Division of Land Resources, DNRCD Division of Environmental Management, DNRCD Division of Forest Resources, DNRCD North Carolina State University
Applications:	Water quality monitoring Land cover/land use mapping Forest cover type mapping and special forestry related projects Dam inventory Habitat mapping
Status:	Landsat applications are under development or planned.
Equipment:	Data General Eclipse S-230 minicomputer with 448 KB memory 96 million byte Data General Disk Drive 800 BPI Data General tape drive Talos digitizing tables Tektronix Cathode Ray Tubes
Software:	COMARC Design Systems interactive analysis and graphics display software coupled with Data General Advanced Operating System Software.

REMOTE SENSING PROGRAM SUMMARY
NORTH CAROLINA–Continued

Funding:	Federal "208" grants, state appropriated funds.
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
NORTH DAKOTA

Contact:	Dr. Roland D. Mower, Director University of North Dakota Institute of Remote Sensing Grand Forks, North Dakota 58202 (701) 777-4246
Institutional Framework:	University of North Dakota
Participating Agencies and Organizations:	State Agencies
Applications:	Land use/land cover Water quality planning
Status:	Operational
Equipment:	IBM 370/156 IMPAC Interactive System Light tables Stereoscopes Map-O-Graph Zoom-transfer-Scope Densitometers Polar Planimeter Digitizer
Software:	ORSER (Penn State)
Funding:	Various contracts for products
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
OKLAHOMA

Contact:	Keith Vaughan State Capitol, Rm. 20 Oklahoma City, Oklahoma 73105 (405) 521-2384
Institutional Framework:	Oklahoma Conservation Commission
Participating Agencies and Organizations:	Oklahoma Conservation Commission Soil Conservation Service Oklahoma Department of Agriculture Ozarks Regional Commission
Applications:	Water Quality Program —inventory of eroded areas —inventory of surface impoundments Resource Conservation —land cover update —riparian vegetation inventory
Status:	Operational
Equipment:	Comtal-interactive display system mini-computers
Software:	Internally developed.
Funding:	U.S. Environmental Protection Agency Soil Conservation Service Ozarks Regional Commission
Other Information:	All tasks have been completed by Oklahoma Conservation Commission through contracts with Oklahoma Foundation for Research and Development Utilization, Inc.

REMOTE SENSING PROGRAM SUMMARY
OHIO

Contact:	Mr. Gary Schaal or Jim Given Remote Sensing Unit Dept. of Natural Resources Fountain Square Columbus, Ohio 43224 (614) 466-6294
Institutional Framework:	Ohio Department of Natural Resources
Participating Agencies and Organizations:	Ohio Department of Natural Resources' Wildlife, Reclamation and Water Divisions
Applications:	Wildlife habitat Land reclamation Strip mining
Status:	Experimental (pilot studies)
Equipment:	Bell 43 teleprinter connected to COMNET time sharing system (private for Profit network). NASA ERSAC at Goddard Space Flight Center prepares and formats data on request from Ohio. Data is sent to and maintained by COMNET. Ohio accesses data via Bell 43 teleprinter.
Software:	NASA ORSER (office of Remote Sensing Earth Resources) software.
Funding:	NASA General fund appropriation
Other Information:	A prior LANDSAT demonstration project took place in Ohio in 1977. Since then there has been no satellite data activity until Ohio embarked on the above projects. This system is not integrated with the state GIS (OCAP—Ohio Capability Analysis Program) system.

REMOTE SENSING PROGRAM SUMMARY
OREGON

Contact:	**Environmental Remote Sensing Applications Laboratory** **Oregon State University** **Corvallis, Oregon 97331** **(503) 754-3056**
Institutional Framework:	Environmental Remote Sensing Applications Laboratory (ERSA), Oregon State University
Participating Agencies and Organizations:	Department of Water Resources Department of Fish and Wildlife Deschutes County Planning Department
Applications:	Irrigated and other agricultural lands Wildlife habitat mapping and assessment Resource inventories
Status:	Operational
Equipment:	N/A
Software:	N/A
Funding:	Contracts with state and local agencies, Pacific Northwest Regional Commission.
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
PENNSYLVANIA

Contact:	Gary Peterson Office of Remote Sensing of Earth Resources 220 Electrical Engineering West Penn State University University Park, Pennsylvania 16802 (814) 865-9753
Institutional Framework:	Office of Remote Sensing of Earth Resources (ORSER), Penn State University
Participating Agencies and Organizations:	Federal agencies, regional planning commissions, private corporations
Applications:	Land cover mapping Forest inventory Forest insects Soil mapping Strip mine mapping
Status:	Operational facility for research and development
Equipment:	Systems/370 IBM 3033 Processor Ramtek color display Tektroniks 4010 graphic terminal
Software:	ORSER (Penn State developed)
Funding:	NASA, Penn State University
Other Information:	The only use by state agencies, has been a study of defoliation caused by the gypsy moth.

REMOTE SENSING PROGRAM SUMMARY
RHODE ISLAND

Contact:	No Program
Institutional Framework:	N/A
Participating Agencies and Organizations:	N/A
Applications:	N/A
Status:	N/A
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
SOUTH CAROLINA

Contact:	Gerald R. Minick USC Computer Graphics 2712 Middleburg Drive Suite 104 Columbia, South Carolina 29204 (803) 777-7236
Institutional Framework:	University of South Carolina, Computer Services Division South Carolina Budget and Control Board, Division of Research and Statistics
Participating Agencies and Organizations:	Land Resources Committee Water Resources Committee Wildlife and Marine Resources Clemson University, Department of Forestry Division of Research and Statistics
Applications:	Land Cover Inventory Integration of Data With State Data Base
Status:	Operational/Development
Equipment:	Comtal Vision I/2ϕ Data General Eclipse S/23ϕ Amdal V6
Software:	ELAS (NASA) USC Computer Graphics–1GP ESRI NASA RR/SIDACS
Funding:	State Government NASA Production Contracts
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
SOUTH DAKOTA

Contact:	**Bill Ripple** **Planning Information Section** **South Dakota State Planning Bureau** **Pierre, South Dakota 57501** **(605) 773-3661**
Institutional Framework:	South Dakota State Planning Bureau
Participating Agencies and Organizations:	Department of Water and Natural Resources Planning Districts Department of Transportation Department of Agriculture U.S. Fish and Wildlife Service U.S. Soil Conservation Service Local Governments
Applications:	Computerized Resource Information System Land Use Mapping Land Capability Analysis Water Resources Planning—Surface Water Mapping 208 Water Quality Planning, Soil Erosion Modeling Crop Inventories, Transportation Planning Transmission Corridor Mapping
Status:	Operational
Equipment:	IBM 3031 Mainframe Computer (University Owned) 3—IBM 3278 Display Terminals Tektronix 4051 Micro-computer Summagraphics Digitizer
Software:	Landsat Imagery Analysis Package (LIMAP)—South Dakota Planning Bureau (Polygrid) Polygon to Grid Cell package—South Dakota Planning Bureau
Funding:	State Funds
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
TENNESSEE

Contact:	Sam Pearsall Tennessee Heritage Program Dept. of Conservation 2611 W. End Ave. Nashville, Tennessee 37203 (615) 741-1061 or Dr. Ralph Fullerton Dept. of Geography & Geology Middle Tennessee State Univ. Murfreesboro, Tennessee (615) 898-2726
Institutional Framework:	Middle Tennessee State University, Murfreesboro, Tennessee with supervision of state agency committee
Participating Agencies and Organizations:	State Department of Conservation, State Department of Public Health, Tennessee Wildlife Resources Agency, State Planning Office, Tennessee Department of Agriculture.
Applications:	Determination of lands unsuitable for mining in Upper Emory River Watershed (East Tennessee) Determination of floodplain & flood areas in Rutherford County, Tennessee.
Status:	Demonstration projects are being completed. A full scale program with the acquistion of Landsat processing capability is under development and is expected to be operational by mid-1981 pending the release of state funds.

REMOTE SENSING PROGRAM SUMMARY
TENNESSEE—Continued

Equipment:	Currently most of the work on the demonstration projects is being done at the National Space Technology Laboratory in Mississippi (NASA). Plans are to acquire a minicomputer at the Middle Tennessee State University to permit processing of satellite imagery.
Software:	ELAS (NASA ERL) software is being used at the Mississippi lab for the demonstration projects. Plans are to use software & data from GIST (Geographic Information System for Tennessee) and superimpose data from this system on satellite imagery for a variety of applications.
Funding:	State Appropriations
Other Information:	The program has received legislative committee approval and pending the outcome of the legislative session should be operational by mid-1981.

REMOTE SENSING PROGRAM SUMMARY
TEXAS

Contact:	David L. Ferguson Texas Natural Resource Information System P.O. Box 13087 Austin, Texas 78711 (512) 475-3571
Institutional Framework:	Texas Natural Resource Information System (TRNIS), a "consortium" of 13 state agencies, housed within the Department of Water Resources.
Participating Agencies and Organizations:	Dept. of Water Resources General Land Office Air Control Board Forest Service Industrial Commission Dept. of Health Bureau of Economic Geology Railroad Commission Dept. of Agriculture Dept. of Highways and Public Transportation Universities, Private Consultants Parks and Wildlife Dept. Soil and Water Conservation Board Coastal and Marine Council
Applications:	Land Use/Land Cover Mapping Playa Lakes Mapping Forestland Inventory Wildlife Habitat Dam Safety
Status:	Operational with new programs under development.

REMOTE SENSING PROGRAM SUMMARY
TEXAS—Continued

Equipment:	Ramtek color display UNIVAC 1100-41 Processor Interdata 7/32 Calcomp 748 Plotter Tektronix 4014 Light table Stereoscope Zoom Transfer Scope
Software:	Various packages from NASA/JPL, NASA/ERL, LARS (Purdue) and internally developed.
Funding:	State funding and contracts with federal agencies.
Other Information:	TNRIS is directed by a task force of member agencies; Systems Central staff provide remote sensing support to these agencies and other users.

REMOTE SENSING PROGRAM SUMMARY
UTAH

Contact:	Martha Smith Remote Sensing Coordinator Utah Geological and Mineral Survey 606 Black Hawk Way Salt Lake City, Utah 84108 (801) 581-3066
Institutional Framework:	State Planning Coordinator Office and Utah Division of State Lands
Participating Agencies and Organizations:	Department of Natural Resources Division of State Lands Division of Water Rights Division of Water Resources Division of Wild Life Resources University of Utah, Department of Geography State Planning Coordinator's Office
Applications:	Range land: cover species, quantities Forestry: cover types, growth stage, fire hazards Wild life cover: cover types, density (for environmental studies) Irrigated agricultural areas: change in area with time Snow pack: estimation of water supply
Status:	Under development with assistance from NASA's Western Regional Applications Program
Equipment:	Univac 1108—(in transition to 1130) at University of Utah
Software:	N/A
Funding:	N/A
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
VERMONT

Contact:	Dennis Malloy Vermont State Planning Office 109 State Street Pavilion Office Building Montpelier, Vermont 05602 (802) 828-3326
Institutional Framework:	No single entity has lead agency responsibility; State Planning Office serves as coordinator.
Participating Agencies and Organizations:	Agency of Environmental Conservation Dept. of Forests and Parks Dept. of Water Resources University of Vermont, School of Natural Resources Vermont Mapping Advisory Committee
Applications:	Forest Cover Type Classification Water Resources Inventory Land Use/Land Cover Inventory and Analysis
Status:	Under development
Equipment:	N/A
Software:	N/A
Funding:	State funds, EPA, HUD, NASA
Other Information:	State has utilized computer facilities of NASA's Eastern Regional Remote Sensing Applications Center and the University of Vermont.

REMOTE SENSING PROGRAM SUMMARY
VIRGINIA

Contact:	Warren Hypes NASA Langley Research Center Hampton, Virginia 23665 (804) 827-2486
Institutional Framework:	Commonwealth Data Base, Department of Taxation, has prime responsibility. Commonwealth Data Base (CDB) project has subcontracted Landsat digital data processing responsibility to the Virginia Institute and Marine Science which is administratively attached to the College of William and Mary.
Participating Agencies and Organizations:	State Agencies Planning District Commissions Counties
Applications:	Forest classification of James City County Biomass quantification for determining natural hydrocarbon background Vegetative changes on abandoned strip mines Land use/Land cover classifications of selected counties.
Status:	Under development
Equipment:	William and Mary computer: IBM 370/165 Remote terminals include Apple II, Bell 43, and Decwriter III
Software:	Basic software program is the ORSER program developed and sold by Penn State University
Funding:	Funds are provided by appropriations from the Virginia General Assembly to the Commonwealth Data Base project

REMOTE SENSING PROGRAM SUMMARY
VIRGINIA—Continued

Other Information:	Other remote sensing capability exists at: Virginia Polytechnic Institute and State University, Blacksburg, Virginia Old Dominion University, Norfolk, Virginia

REMOTE SENSING PROGRAM SUMMARY
WASHINGTON

Contact:	Mike McCormick Dept. of Planning & Community Affairs Capital Center Bldg., FN-41 Olympia, Washington 98504 (206) 753-1928 or Luke Krebs Computer Service Center Washington State University Pullman, Washington 99164 (509) 335-6611
Institutional Framework:	Department of Planning and Community Affairs Department of Natural Resources Computer Service Center
Participating Agencies and Organizations:	Department of Natural Resources Department of Game Department of Revenue Department of Transportation Universities in state of Washington
Applications:	Clear cutting study (Timber) for Department of Revenue Land use/land cover (Puget sound) Wildlife habitat studies Timber inventory Water resource studies
Status:	Operational
Equipment:	AMDAHL 470/V8 processor Interactive Image Processing System 70/E PDP 1134-A
Software:	VICAR/IBIS (NASA) software STC (Stanford Tech. Corporation) System 511

REMOTE SENSING PROGRAM SUMMARY
WASHINGTON—Continued

Funding:	NASA, state general funds, Pacific Northwest Regional Commission
Other Information:	Users have access to VICAR/IBIS on AMDAHL through time-sharing network

REMOTE SENSING PROGRAM SUMMARY
WEST VIRGINIA

Contact:	Peter Lessing West Virginia Geological and Economic Survey P.O. Box 879 Morgantown, West Virginia 26505 (304) 292-6331
Institutional Framework:	West Virginia Geological and Economic Survey (State Agency)
Participating Agencies and Organizations:	State Agencies, Consultants and Citizens
Applications:	Lineaments Analysis (geological features)
Status:	A demonstration application of landsat has been conducted.
Equipment:	N/A
Software:	N/A
Funding:	West Virginia Geological Survey
Other Information:	Limited use of landsat in remote sensing work.

REMOTE SENSING PROGRAM SUMMARY
WISCONSIN

Contact:	Bob Merideth Environmental Remote Sensing Center University of Wisconsin-Madison 1253 Meteorology & Space Science Bldg. Madison, Wisconsin 53706 (608) 263-4578
Institutional Framework:	Department of Administration Environmental Remote Sensing Center—University of Wisconsin
Participating Agencies and Organizations:	Wisconsin Departments of Natural Resources, Administration, transportation, and Agriculture; State Cartographer of Wisconsin; University of Wisconsin-Madison U.S. Geological Survey, Wisconsin Water Resources Division; U.S. Environmental Protection Agency; National Aeronautics and Space Administration.
Applications:	—water quality classification of over 3,000 inland lakes with direct applications to continual trophic status assessment and inland renewal programs —land cover classification for much of Wisconsin for use in hydrologic modeling of sediment/pollutant runoff and in low-flowing stream estimation —atmospheric corrections for satellite imagery
Status:	Operational
Equipment:	UNIVAC 1100/82 processor, graphics, terminal and Harris/6 minicomputer, PDP 11/45 and 5 computer terminals, stereo scopes, light tables, Talos digitizer, radiometers, viewers, scanners, drum dryers, enlargers

REMOTE SENSING PROGRAM SUMMARY
WISCONSIN—Continued

Software:	Software package of over 130 programs developed at the Environmental Remote Sensing Center for use on the UNIVAC 1100 system.
Funding:	Contracts and grants from federal sources: NASA, USGS, EPA, TVA, NSF; some state funding
Other Information:	N/A

REMOTE SENSING PROGRAM SUMMARY
WYOMING

ntact:	Collin Fallat Department of Agriculture 2219 Carey Avenue Cheyenne, Wyoming 82002 (307) 777-7321
Institutional Framework:	State Planning Coordinator's Office and the University of Wyoming Department of Geology.
Participating Agencies and Organizations:	State Engineer Water Development Commission Wyoming Game and Fish Department
Applications:	Mapping of land use and land cover
Status:	Planned
Equipment:	N/A
Software:	N/A
Funding:	N/A
Other Information:	The State of Wyoming currently has limited remote sensing capability. The major application of remote sensing techniques in Wyoming has been through the University of Wyoming, primarily of a research nature.